

Reinforced Concrete Masonry Walls Under Combined Axial and Flexural Loading

R. Anne McLain,¹ David I. McLean,² and Thomas L. McLain³

Abstract:

This study investigated the ultimate strength behavior of reinforced concrete masonry walls under combined axial and flexural loading. Eight wall specimens were tested: four constructed with normal weight blocks and four with lightweight blocks. The walls were tested to flexural failure under various levels of axial load. The results indicate that the behavior of the reinforced concrete masonry walls is similar to that of reinforced concrete members. For the range of axial loads investigated, increased axial load resulted in increased flexural capacity but decreased ductility. The measured strengths of the walls were consistently greater than the strengths predicted by ultimate strength interaction equations using the Whitney stress block. The average ratio of measured to predicted strength was 1.2. The lightweight walls were lower in strength and were less ductile than the normal weight walls.

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¹ Bridge Engineer, Washington State Department of Transportation, Olympia, Washington 98504.

² Assistant Professor, Department of Civil and Environmental Engineering, Washington State University, Pullman, Washington 99164-2910.

³ Structural Engineer, Olympia, Washington 98504.